

Architectural Drawing as verb, not as noun:

extending the concept of Chronological Drawing and X-Ray-Drawing

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Keywords. architectural drawing; chronological drawing; X-Ray-drawing; architectural practice; architectural education.

Abstract

In this paper I will discuss the renewed role of (the) architectural drawing in architectural practice, starting from my previous research. (Van Den Berghe 2012) Hence, I will present the potential of (the) architectural drawing by drawing a line from architectural research into architectural education.

I will first outline my view upon (the) architectural drawing as a physical-mental action performed by the designing architect, and explain how (the) architectural drawing—in my practice, as in a number of other architectural practices—not only acts as a passive representation of the building in the future, but also as an active generator of content in the process of architectural creation in the present, in the (moment of) making.

Hence, I will explain the concept of Chronological Drawing, as one of the concepts produced by my doctoral research. I will demonstrate this concept through a design-research case (House VDV-C), investigated and made explicit in my Ph.D.

Subsequently, I will connect and merge this concept of Chronological Drawing with the concept of X-Ray-Drawing (House ST)—another concept that has come out of my doctoral research—and further point at the possibilities these (merged) concepts offer in the process of architectural creation, by explaining how they work through a set of drawings produced in my recent critical practice (House DG-DR).

Finally, having explained and demonstrated these concepts from (my) architectural research and (my) architectural practice, I will present an application in architectural education, so as to ‘draw a line’ directly from architectural research into future workshops with (my) students. From the applications of these concepts in emerging new architectural practices—our students are the future generations of architects—the aforementioned importance of (the) architectural drawing can be grounded, disseminated, and applied for the benefit of (renewed) architectural practice.

The renewed role of (the) architectural drawing in architectural practice

The terminology in this subtitle asks for clarification: why a ‘renewed’ role, and what is the status and nature of ‘(the) architectural drawing’? I have discovered this renewed role through my research, and it is meant for application in architectural practice. In order to be most effective, I will suggest an application in architectural education—the incubator of upcoming generations of architects—from where it can spread into future architectural practice.

The use of ‘renewed’ suggests the re-instatement of something that has been there, in the past, but gone by now. Indeed, since the Renaissance the architectural drawing has been at the centre of architectural practice, and architectural education. It took a good draftsman to be(come) a good architect! Only lately, other tools, like parametrics and diagrammatic data processing, sustained by digital media, have become competitors of (the) architectural drawing as we knew it (for a good understanding of

the discussions of this paper, these new tools, in my view, are not simply collectible under the umbrella of (the) architectural drawing). For some practitioners (both in practice and in education), these new tools have overruled (the) architectural drawing, suggesting the latter has become out of date, “irrelevant”, hiding behind the stance that “architectural practice ‘nowadays’ is being done with or even by computers”. Doing so, these new tools have reduced the status of (the) architectural drawing from a nearby and physical ‘one-of’ object to an immaterial set of data on a ‘distant’ hard disk, physically unreachable, ungraspable by its immateriality, assisting in the growing devaluation of (the) architectural drawing ‘as presence’ (Birnbaum 2008, Husserl 1931), no longer seen as ‘presentation’, as a ‘work’ in its own right.

The status and the nature of (the) architectural drawing is connected with its aims and its finalities: I want to re-instate (the) architectural drawing at the centre of architectural practice, based on research findings (Van Den Berghe 2012), and through projecting it at the centre of architectural education. I do not want to annihilate parametric and diagrammatic approaches, but I prefer to leave them to the interest of others. I want to counter the declared “irrelevance” of the hand made drawing, but I do not want to exclude digital drawing tools. So I include CAD drawings, although I want to make a distinction between them and hand made drawings, because in my view it first takes the mastery of the hand, only subsequently of the mouse click. Notwithstanding possible applications of CAD drawings in the further process, hand made drawings should occupy the central place throughout the whole process of architectural creation. And this is the sequence by which I will present the two new concepts of drawing in the upcoming paragraphs.

So I first start with the hand made drawing—the physical one (as said, I only want to ‘postpone’ CAD drawings, both in the process of architectural creation, and in this paper). And here, I want to make another distinction—a fundamental one—between the architectural drawing as noun, and architectural drawing as verb.

As noun, my concept of architectural drawing includes three different kinds of drawings architects make: sketches, handmade drawings, and scale models. In a ‘forward’ mode of thinking, I include scale models as architectural drawings made with a cutter, which is the ‘pencil’ that allows to draw or ‘trace’ architectural drawings in substance. In a ‘reverse’ mode of thinking, then, I consider sketches and handmade drawings made by a pencil, which is the ‘cutter’ with which the draftsman traces ‘an’ architecture on—or better: in—the substance of paper, or cardboard. Here, *materiality* comes in the centre of the discussion.

With materiality (substance), the architectural drawing, in my view, can evolve from a mere tool to a thing, and when executed with care this thing becomes a ‘work’. Then, the mere ‘instrumental’ re-presentation becomes ‘presence’. Its status as a ‘work-as-presence’ (Birnbaum 2008) may encapsulate the renewed role of (the) architectural drawing. Once a ‘work’, the verb ‘to work’ enters the discourse, and the process of making comes into the scope.

And here, in the transition from noun to verb, I would like to connect this *materiality* with *physicality*: ‘to work’ (as verb) requires the involvement of the body. Architectural drawing, as a physical act, happens around the hinges (joints) of the fingers (thumbnail drawings), the pulse, the elbow, and the shoulder (monumental drawings). Central in the physical act of drawing is the hand: it holds the pencil (the ‘knife’), receives the impulses of the mental sphere, and registers (on) the texture of the paper. The physical (the body: the hand) is the interface between the mental (the mind) and the material (the paper, the drawing). It takes the *physical* (the drawing hand) to permit the *mental* and the *material* to merge. As Jonathan Hill contends, this is “ ... the drawing of a line on paper and the drawing forth of an idea from the mind

into physical reality. *Disegno* implies a direct link between an idea and a thing (Hill 2005). *Disegno*, here, coming from the Italian *disegnare* (to draw, to designate, to give significance to), relates to the Greek *skediazo*, which combines to intend with to sketch. My view of architectural drawing, then, most closely connects with the Greek *skediazo*, in that it is the place and the moment where and when *materiality* and *mental-ity* can merge through *physicality* so as to become the most intense *momentum* of the process of creation. This state of grace, the co-presence of mind, hand and substance, it is that I want to re-instate at the centre of the process of creation. In my recourse to (the) hand made architectural drawing, and to its most intensified form—the sketch (*skediazo*)—I refer to the exquisite set of hand made drawings, made by Sigurd Lewerentz for his unsurpassed church in Klippan (Lewerentz 1966). Adam Caruso, in his essay *Sigurd Lewerentz and a Material Basis of Form*, argues that Lewerentz’s work is “... a result of a completely internalised, synthetic way of working where issues of construction and thematic intent become one” (Caruso 1997). Lewerentz’s set of handmade drawings convincingly demonstrates this “synthetic way of working”, this internalised synthesis, the co-presence of *materiality* (of pencil, paper, and brick) and *mental-ity* by the grace of *physicality* (drawing as verb). I also refer to the drawings made by Jorn Utzon for the construction process of the walls of Bayview House (Utzon 1965). My pledge, then, in favor of the re-instatement of (the) hand made architectural drawing is a pledge for physical fulfilment, an unmeasurable desire of the soul, and for this reason it deserves to be re-instated at the centre of actual and future architectural practice. It is an acknowledgment of *embodiment* that generates understanding.

to dream	is	to draw by hand
to draw	is	to think by hand
to think	is	to make by hand, so:
to dream	is	to make (by hand).

(The) Chronological Drawing

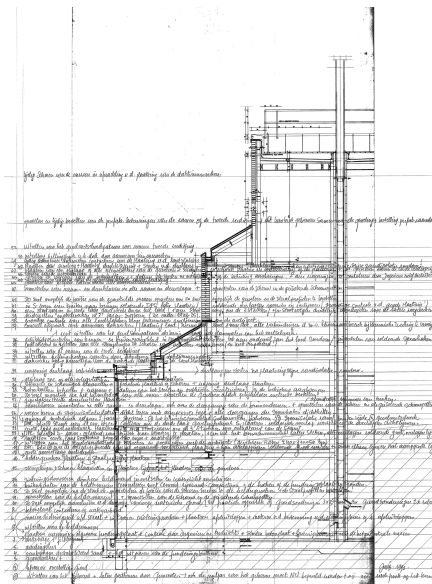


Figure 1 The First Chronological Drawing: House VDV-C (1990-1992)

This paper is not only about finding a language to talk about drawing, although giving names to the specific concepts of drawing I will present here is an element of the

novelty of these concepts: I called them Chronological Drawing, and X-Ray-Drawing (Van Den Berghe 2012).

More likely, this paper is about drawing-as-verb, used as a critical method that serves the discovery and application of tacit knowledge through drawing, both knowledge about the embodied cognition of the role of the hand in drawing (which I have explained—see above), and the embodied cognition about what is being drawn, which I will explain now, and which, in my concept of Chronological Drawing, is: construction practice.

I have made the first Chronological Drawing for House VDV-C (1990-1992)(Figure 1) in order to gain embodied cognition of its construction process. As Louis Kahn teaches us: “ (...) If we would train ourselves to draw as we build, from the bottom up, when we do, stopping our pencil to make a mark at the joints of pouring or erecting, ornament would grow out of our love for the expression of method (...) The desire to express how it is done would filter through the entire society of building, to architect, engineer, builder and draftsman” (Frampton 1980). What Kahn suggests here, is the emergence of embodiment through the incorporation of time in architectural drawing, more specifically: *chronology*. As a young architect, and in order to better understand construction practice, I have made this Chronological Drawing for House VDV-C from the bottom up, as Kahn suggests, in order to gain embodied cognition of the chronology of building, and by doing so, of the drawing hand. These draft-lines were my embodied *Translations from Drawing to Building* (Evans 1997), my *Drawing to Find Out* (Merrill 2011).

Then, so as to amplify my embodied cognition of what is being drawn—construction practice—I have “made a mark”, as Kahn suggests, “at the joints of pouring and erecting”, by consequently drawing a horizontal lines at these joints, on which I have described and numbered the subsequent steps of physical action on the construction site. Through rehearsing the chronology of construction, I merged thinking and drawing—which Juhani Pallasmaa would call *The Thinking Hand* (Pallasmaa 2009)—in a stream of consciousness, a monologue intérieur—so as to obtain embodied cognition of the vertical chronology of building. This ‘monologue intérieur’ is an integral and indispensable part of the concept of Chronological Drawing.

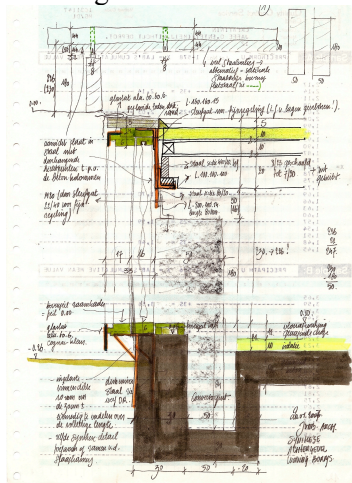


Figure 2 The Second Chronological Drawing: House B (2005-2007)

Then, the second Chronological Drawing (figure 2), which I have developed in the creation process of House B (2005-2007), is a ‘densified’ version of the first one, because it has been accompanied by a more intense, more empathically involved

monologue intérieur, based on my embodied cognition of ‘emotionally charged’ drawing, and of the construction process. Both had grown through years of doing it.

Also, this drawing is *skediazo*, when and where intention and action merge—sketching—and the speed of it allows for an immediate transit of intention from-mind-to-hand-to-paper-to-construction-site. Architects adopt this most dense way of drawing in these most intense moments of creation. In the second Chronological drawing, an empathic involvement was brought into the process of creation by incorporating that which Juhani Pallasmaa describes as: “The authenticity of architectural experience is grounded in the tectonic language of building and the comprehensibility of the act of construction to the senses. We behold, touch, listen and measure the world with our entire bodily existence, and the experiential world is organized and articulated around the center of the body (...) As the work interacts with the body of the observer the experience mirrors these bodily sensations of the maker. Consequently, architecture is communication from the body of the architect directly to the body of the inhabitant (...) The structures of the building are unconsciously imitated and comprehended through the skeletal system unknowingly, as we perform the task of the column and the vault with our body. The brick wants to become a vault as Louis Kahn has said, but this metamorphosis takes place through the mimesis of our own body” (Pallasmaa 2006). Giambattista Vico, in his *Scienza Nuova*, argues that: “As rational metaphysics teaches that man becomes all things by understanding them, imaginative metaphysics shows that man becomes all things by not understanding them (...) for when he does not understand he (...) becomes them by transforming himself into them”(Vico 1725).

In the Concept of Chronological Drawing, *mental-ity* and *materiality* communicate through *physicality*, and drawing-as-verb results in a thing-as-presence which is a work—working—that by doing it generates embodied cognition of drawing, and of what is being drawn: construction practice.

X-Ray-Drawing

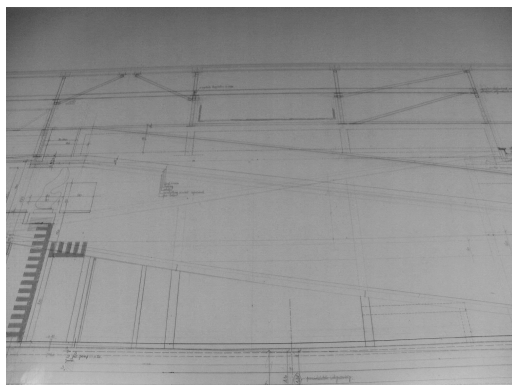


Figure 3 X-Ray-Drawing: House ST (1998-2001)

Whereas I have encompassed *all the moments* of construction practice through the exploration and application of the concept of Chronological Drawing, I subsequently wanted to connect these moments with *all the places* of construction practice, so as to “encompass the whole building in a drawing” (Alberti 1485). Alberti’s *lineamenti*, literally a set of lines, “referred to the essential geometric idea that issued from the architect’s mind, took the form of a drawing, and guided the production of architecture” (Pérez-Gómez 2006). This has resulted in the X-Ray-Drawing (Van Den Berghe 2012)(Figure 3), that I have made in the creation process of House ST (1998-

2001). It is a juxtaposition of elevations and vertical sections in one drawing, in an attempt to get a grip on the correlations between them, on quantities of materials, and on the chronology of the construction process. The latter is the Chronological Drawing-part of the X-Ray-Drawing.

Later, during my doctoral research, I have re-discovered this concept of drawing, and further refined it by the application of CAD drawing in the juxtaposition of the plans of House DG-DR (1999-2004)(Figure 4).

In the Concept of X-Ray-Drawing, the Concept of Chronological Drawing as all the moments of construction practice communicates with all the places of construction practice by seeing through all the layers—all the places—of chronology.

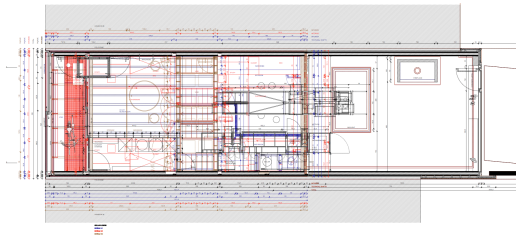


Figure 4 *X-Ray-Drawing: House DG-DR (1999-2004)*

Drawing a Line

Chronological Drawing and X-Ray-Drawing need to be further refined through more research, which can be done through thinking, but most of all through drawing.

As a first step, I have decided to apply these concepts in the first master design studio at Leuven University Faculty of Architecture/Campus Ghent. There, students are currently designing a Gothic tower in the landscape of the Holy Lamb (van Eyck 1432), and the output explicitly will have to be a vertical drawing-as-section as an X-Ray-Drawing of the tower, incorporating all the characteristics of the Chronological Drawing as described and demonstrated above. By doing so, these 22 students will produce parallel research tracks through which different approaches of these drawing concepts will be tested and compared. Also, these 22 students will absorb the potential of these drawing concepts, and learn them, and a line from research to education will be drawn, and hopefully be extended into (their) future architectural practices.

References

- Alberti, L.B.: 1485/1988, *De Re Aedificatoria* (The Ten Books of Architecture), translated by J. Leoni, edited by Joseph Rykwert, Neil Leach and Robert Tavernor, London, UK., Book i, Chapter xii.
- Birnbaum, D.: 2008, *The Hospitality of Presence: Problems of Otherness in Husserl's Phenomenology*, Sternberg Press, Berlin, Germany.
- Caruso, A.: 1997, *Sigurd Lewerentz and a Material Basis of Form*. Oasis, Amsterdam, The Netherlands, pp. 45-46.
- Evans, R.: 1997, *Translations from Drawing to Building and Other Essays*, Architectural Association, London.
- Frampton, K.: 1980, *Modern Architecture: A Critical History*, Thames & Hudson Ltd., London, UK, p. 244.
- Hill, J.: 2005, *Drawing Forth*, in *The Unthinkable Doctorate*, J. Verbeke and M. Belderbos (eds), Network for Theory, History and Criticism of Architecture, and Sint-Lucas School of Architecture, Brussels / Ghent, Belgium, p. 224.
- Husserl, E.: 1931, *Méditations Cartésiennes*, Armand Colin, Paris, France.
- Lewerentz, S.: 1962-1966, *St. Petri Church*, Klippan, Sweden.
- Merrill, M.: 2011, *Louis Kahn, Drawing to Find Out: the Dominican Motherhouse and the patient Search for Architecture*, Lars Müller Publishers, Zürich, Switzerland.

- Pallasmaa, J.: 2006, *An Architecture of the Seven Senses*, in *Questions of Perception: Phenomenology in Architecture*, Steven Holl, Juhani Pallasmaa, Alberto Pérez-Gómez, William Stout Publishers, San Francisco, US, p. 36.
- Pallasmaa, J.: 2009, *The Thinking Hand, Existential and Embodied Wisdom in Architecture*, John Wiley & Sons, Chichester, UK.
- Pérez-Gómez, A.: 2006, *Built upon Love: Architectural Longing after Ethics and Aesthetics*, MIT Press, Cambridge, MA, US, and London, UK, p. 71, p. 70, p. 80.
- Utzon, J.: 1965, Bayview House: sections and elevations of construction methods for the SISU cavity wall, in M. Keiding and K. Dirckinck-Holmfeld (eds), *The Utzon Library: Utzon's Own Houses*, The Danish Architectural Press, Copenhagen, p. 57.
- Van Den Berghe, J.: 2012, *Theatre of Operations, or: Construction Site as Architectural Design*, Ph.D dissertation and exhibition, RMIT University, Melbourne, Australia.
- van Eyck, J., and van Eyck, H.: 1432, *The Holy Lamb*, painting at the Saint Bavo cathedral, Ghent.
- Vico, G.: 1725, *Scienza Nuova: Principi di Scienza Nuova d' intorno alla Comune Natura delle Nazioni*.